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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,853	01/13/2004	Christopher Spooner	50174.020700UT	8435

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EXAMINER	
COUGHLAN, PETER D	
ART UNIT	**PAPER NUMBER**
2129	

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/755,853	SPOONER ET AL.	
	Examiner	Art Unit	
	Peter Coughlan	2129	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

1. Claims 1-9 are pending in this application.

35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-9 are rejected under 35 U.S.C. 101 for nonstatutory subject matter. The computer system must set forth a practical application of that § 101 judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77. The invention is ineligible because it has not been limited to a substantial practical application. A solution that is forwarded through a service module to the main system is useless in a real world situation.

In determining whether the claim is for a "practical application," the focus is not on whether the steps taken to achieve a particular result are useful, tangible and concrete, but rather that the final result achieved by the claimed invention is "useful, tangible and concrete." If the claim is directed to a practical application of the § 101 judicial exception producing a result tied to the physical world that does not preempt the judicial exception, then the claim meets the statutory requirement of 35 U.S.C. § 101.

The phrases 'partially within the parent space', 'dividing the containing space into a plurality of parent spaces', 'defining a sphere' and 'defining a circle' is not clear in its purpose or scope. There has to be an interface between the real world and main system for a practical application to be achieved. The claims where the object is defined by an circle of sphere has no meaning or use as stated.

The invention must be for a practical application and either:

1) specify transforming (physical thing) or

2) have the FINAL RESULT (not the steps) achieve or produce a

useful (specific, substantial, AND credible),

concrete (substantially repeatable/ non-unpredictable), AND

tangible (real world/ non-abstract) result.

A claim that is so broad that it reads on both statutory and non-statutory subject matter, must be amended, and if the specification discloses a practical application but the claim is broader than the disclosure such that it does not require the practical application, then the claim must be amended.

Claims where only an algorithm is stated that uses recursion is not useful and not tangible and thus is not statutory.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The terms and words, 'space', 'object', 'identify', 'defining a sphere' and 'defining a circle' are so broad and vague they fail to clearly point out and clearly claim what the intended use and purpose of the invention.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Savitch in view of Dahl ('Problem Solving with C++', referred to as **Savitch**; 'Structured Programming', referred to as **Dahl**)

Claim 1.

Savitch teaches defining a containing space (**Savitch,** p628:1 to 637:25; A multi dimensional array is one example of a containing space.); identifying an object in question within the containing space. (**Savitch,** p70:3-8 and p369:6; Using a 'if' statement is one way to set up a Boolean identifier. To identify the object itself, one way is to use the '==' Boolean identifier for equals.)

Savitch does not teach dividing the containing space into a plurality of parent spaces.

Dahl teaches dividing the containing space into a plurality of parent spaces. (**Dahl,** p120, Fig. 4(b); Dahl illustrates a two dimensional array where the 'parent spaces' of applicant is equivalent to the first dimension of this array.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Savitch by segmenting the space into smaller areas as taught by Dahl to divide the containing space into a plurality of parent spaces.

For the purpose of having spaces that are labeled and in smaller easier to evaluate segments.

Savitch teaches for each of the parent spaces, iteratively repeating a query process, comprising: i) querying the parent space to determine if the object in question is within the parent space (**Savitch,** p373:28 through p374:18 ; What is required is a function that returns a yes or no response. This is a characteristic of Boolean function. The contents of the function itself is determined by the type of elements the comprise the object.); ii) if the object in question is completely within or completely outside the parent space, returning the result to the

containing space (**Savitch,** p373:28 through p374:18, p78:17-18 and p79:3-8; To fulfill this claim insert the multiple Boolean expression that has an 'or' operator (p78) into the 'if' statement (p79). The first Boolean expression would handle if the object is completely within the parent space. The second Boolean expression would handle if the object is completely outside the parent space. The 'returning result' of applicant would be whatever applicant deems appropriate and insert that after the Boolean expression of the 'if' statement.) ; and iii) if the object in question is partially within the parent space, subdividing the parent space into a plurality of child spaces, and iteratively repeating the query process for each of the child spaces, wherein each child space is treated as a parent space. (**Savitch,** p726:18 through p727:9; Using the technique of recursion, this enables a function to call upon itself. If the 'if' statement which determines if a object is partially within a parent space is positive, then 'subdividing' would occur and then function would call itself. At that point the child space would become the parent space after the recursion.)

Claims 2, 5 and 8.

Savitch does not teach defining a sphere around the object in question and determining if the sphere is within the parent space.

Dahl teaches defining a sphere around the object in question and determining if the sphere is within the parent space. (**Dahl;** p119 Fig. 3(b); Dahl illustrates a one dimensional with every 2 elements being separated by 'padding'. If this was a three-dimensional array, the 'padding' would form a 'sphere'.

Likewise if the object is within n-dimensional space, the 'padding' would be a n-dimensional sphere. (Examiner's comment: Using another definition of 'space' and 'object', 'sphere' could mean an error tolerance.)) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Dahl by separating an object from other objects by encompassing it with a sphere as taught by Dahl to have a sphere around the object in question and determining if the sphere is within the parent space.

For the purpose of protection of the object from other objects data or to use as a tolerance of error factor when defining an object.

Claims 3, 6 and 9

Savitch does not teach defining a circle around the object in question and determining if the sphere is within the parent space.

Dahl teaches defining a circle around the object in question and determining if the sphere is within the parent space. (**Dahl;** p119 Fig. 3(b); Dahl illustrates a one dimensional with every 2 elements being separated by 'padding'. If this were a two-dimensional array, the 'padding' would form a 'circle'. (Examiner's comment: Using another definition of 'space' and 'object', 'sphere' could mean an error tolerance.)) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Savitch by separating an object from other objects by encompassing it with a

circle as taught by Dahl to define a circle around the object in question and determining if the sphere is within the parent space.

For the purpose of protection of the object from other objects data or to use as a tolerance of error factor when defining an object.

Claim 4.

Savitch teaches defining a containing space (**Savitch,** p628:1 to 637:25; A multi dimensional array is one example of a containing space.); identifying an object in question within the containing space. (**Savitch,** p70:3-8 and p369:6; Using a 'if' statement is one way to set up a Boolean identifier. To identify the object itself, one way is to use the '==' Boolean identifier for equals.)

Savitch does not teach dividing the containing space into a plurality of parent spaces.

Dahl teaches dividing the containing space into a plurality of parent spaces. (**Dahl,** p120, Fig. 4(b); Dahl illustrates a two dimensional array where the 'parent spaces' of applicant is equivalent to the first dimension of this array.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Savitch by segmenting a region into smaller sections as taught by Dahl to divide the containing space into a plurality of parent spaces.

For the purpose of having spaces that are labeled and in smaller easier to evaluate segments.

Savitch teaches for each of the parent spaces, iteratively repeating a query process, comprising: i) querying the parent space to determine if the parent space is within the object question (**Savitch,** p373:28 through p374:18 ; What is required is a function that returns a yes or no response. This is a characteristic of Boolean function. The contents of the function itself is determined by the type of elements the comprise the object.); ii) if the parent space is completely within or completely outside the object in question, returning the result to the containing space (**Savitch,** p373:28 through p374:18, p78:17-18 and p79:3-8; To fulfill this claim insert the multiple Boolean expression that has an 'or' operator (p78) into the 'if' statement (p79). The first Boolean expression would handle if the parent space is completely within the object of question. The second Boolean expression would handle if the parent space is completely outside the object of question. The 'returning result' of applicant would be whatever applicant deems appropriate and insert that after the Boolean expression of the 'if' statement.); and iii) if the parent space is partially within the object in question, subdividing the parent space into a plurality of child spaces, and iteratively repeating the query process for each of the child spaces, wherein each child space is treated as a parent space. (**Savitch,** p726:18 through p727:9; Using the technique of recursion, this enables a function to call upon itself. If the 'if' statement which determines if a object is partially within a parent space is positive, then 'subdividing' would occur and then function would call itself. At that point the child space would become the parent space after the recursion.)

Claim 7.

Savitch teaches defining a containing space (**Savitch,** p628:1 to 637:25; A multi dimensional array is one example of a containing space.); identifying an object in question within the containing space. (**Savitch,** p70:3-8 and p369:6; Using a 'if' statement is one way to set up a Boolean identifier. To identify the object itself, one way is to use the '==' Boolean identifier for equals.)

Savitch does not teach dividing the containing space into a plurality of parent spaces.

Dahl teaches dividing the containing space into a plurality of parent spaces. (**Dahl,** p120, Fig. 4(b); Dahl illustrates a two dimensional array where the 'parent spaces' of applicant is equivalent to the first dimension of this array.) It would have been obvious to a person having ordinary skill in the art at the time of applicant's invention to modify the teachings of Savitch by segmenting an entire space into smaller regions as taught by Dahl to divide the containing space into a plurality of parent spaces.

For the purpose of having spaces that are labeled and in smaller easier to evaluate segments.

Savitch teaches for each of the parent spaces, iteratively repeating a query process, comprising: i) querying the object in question to determine if the parent space is within the object question (**Savitch,** p373:28 through p374:18 ; What is required is a function that returns a yes or no response. This is a characteristic of Boolean function. The contents of the function itself is determined by the type of elements the comprise the object.); ii) if the parent

space is completely within or completely outside the object in question, returning the result to the containing space (**Savitch,** p373:28 through p374:18, p78:17-18 and p79:3-8; To fulfill this claim insert the multiple Boolean expression that has an 'or' operator (p78) into the 'if' statement (p79). The first Boolean expression would handle if the parent space is completely within the object of question. The second Boolean expression would handle if the parent space is completely outside the object of question. The 'returning result' of applicant would be whatever applicant deems appropriate and insert that after the Boolean expression of the 'if' statement.); and iii) if the parent space is partially within the object in question, subdividing the parent space into a plurality of child spaces, and iteratively repeating the query process for each of the child spaces, wherein each child space is treated as a parent space. (**Savitch,** p726:18 through p727:9; Using the technique of recursion, this enables a function to call upon itself. If the 'if' statement which determines if a object is partially within a parent space is positive, then 'subdividing' would occur and then function would call itself. At that point the child space would become the parent space after the recursion.)

Conclusion

5. The prior art of record and not relied upon is considered pertinent to the applicant's disclosure.

-Numerical Analysis: Dodes

-Introduction to Numerical Analysis: Stoer

- Introduction to Numerical Analysis: Hildebrand

-Analysis on Numerical Methods: Issason

-Numerical Analysis and its application: Vulkov

-U. S. Patent 5928151: Hossack

-U. S. Patent 5809179: Marimont

-U. S. Patent: 5946479: Sakaguchi

-U. S. Patent 6072502: Gupta

-U. S. Patent Publication 20020144231: Hariya

6. Claims 1-9 are rejected.

Correspondence Information

7. Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner Peter Coughlan, whose telephone number is (571) 272-5990. The Examiner can be reached on Monday through Friday from 7:15 a.m. to 3:45 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor David Vincent can be reached at (571) 272-3687. Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

Hand delivered to:

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Customer Service Window,

Randolph Building,

401 Dulany Street,

Alexandria, Virginia 22313,

(located on the first floor of the south side of the Randolph Building);

or faxed to:

(571) 273-8300 (for formal communications intended for entry.)

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Peter Coughlan

March 10, 2006